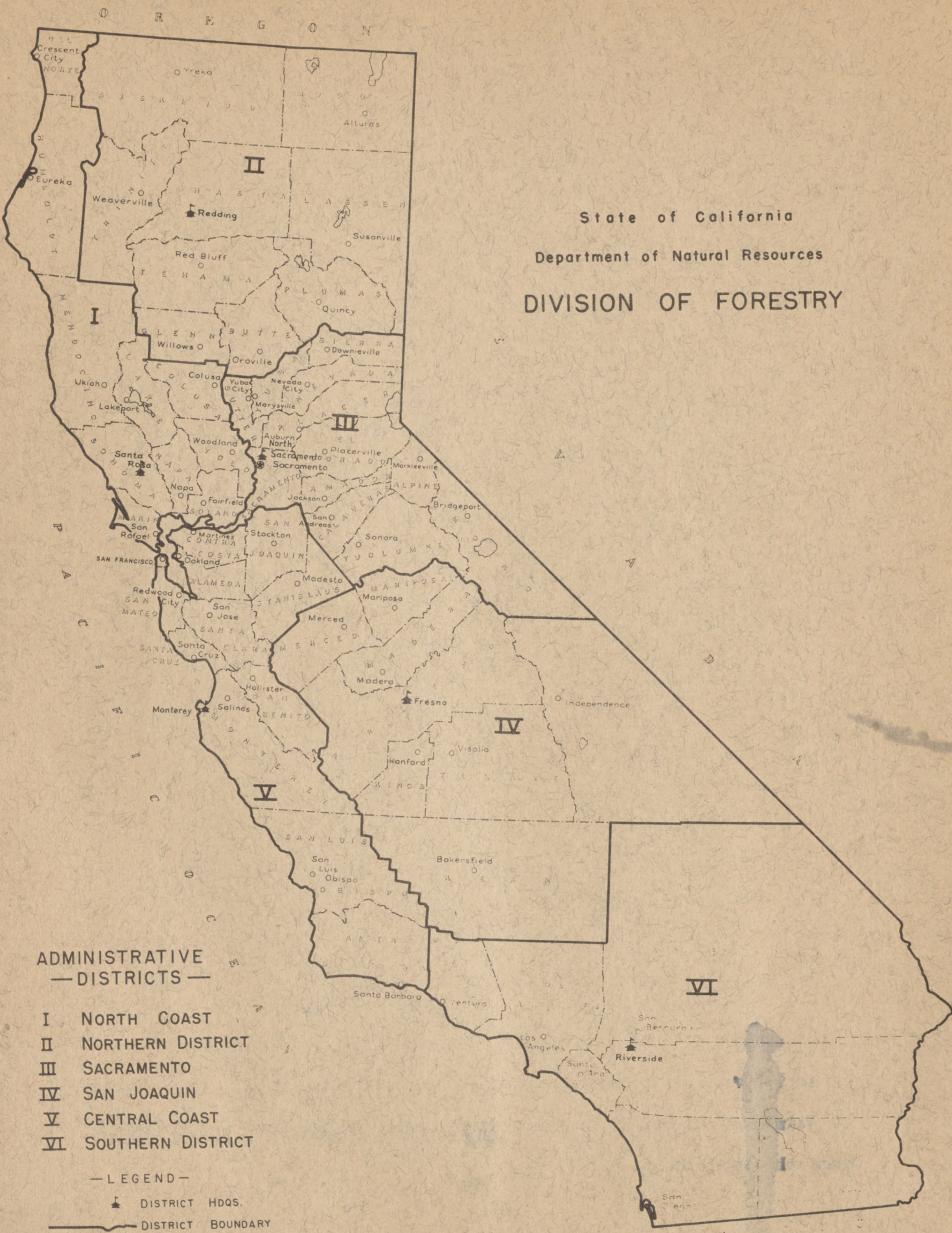




STATE OF
CALIFORNIA

FOREST FIRE REPORT
1956
Division of Forestry

DEPARTMENT
OF
NATURAL
RESOURCES



State of California
Department of Natural Resources
DIVISION OF FORESTRY

ADMINISTRATIVE
—DISTRICTS—

- I NORTH COAST
- II NORTHERN DISTRICT
- III SACRAMENTO
- IV SAN JOAQUIN
- V CENTRAL COAST
- VI SOUTHERN DISTRICT

—LEGEND—

- DISTRICT HDQS.
- DISTRICT BOUNDARY

CALIFORNIA DIVISION OF FORESTRY

1956 FOREST FIRE REPORT

1. CHARACTER AND EXTENT OF THE FIRE SEASON:

Despite the record breaking drought throughout California during the months of November and December, the 1956 fire season was one of the most successful on record upon those lands directly protected by the California State Division of Forestry. The 1758 forest fires is the lowest fire occurrence since 1942 while the 64,617 acres burned by these fires is the least since 1937 and the second best year since the record began in 1933. The number of man-caused fires is the lowest since 1938 and the 39 Class E fires (300 Acres +) is the lowest since this record began in 1942.

In Northern and Central California, the 1956 fire season was below average in severity in spite of the large number of thunderstorm days occurring during the months of July and extending into August.

Following a winter of unusually heavy rain and record breaking floods, the late spring months continued rather cool with sufficient rainfall to prevent any unusually early drying of surface soils and grasses. Heavy precipitation in all drainages except the North Coast during May aided still more, particularly in retarding the drying of heavy forest fuels. The fire season period was marked by the lack of unusually high winds which is perhaps one of the main factors why the season was not as severe as it could have been considering the high thunderstorm occurrence. Substantial rains fell near the middle of September and during the last two days of October the first storm of the season moved across the State bringing moderate to locally heavy rain to the coast range and the foothills of the Sierras, and heavy snow above the 3500 foot level. This brought sufficient precipitation to close the declared fire season on October 31 in all Districts north of the Tehachapi Mountains except the South Coast.

However, with practically no rainfall during the November-December period, some fire occurrence continued and the fire season in the South Coast District was not terminated until January 7 of the New Year.

In Southern California, burning conditions were unusually severe during 1956. Fire weather severity indices show that the 1956 season was worse than the "bad" 1955 season and far more severe than the more nearly normal 1954 season. Although this area experienced heavy rains during the latter part of January, February and March were very dry. However, in April and May, above average precipitation fell and, although June was somewhat warmer than normal, July and August were relatively cool although considerable thunderstorm activity occurred during the month of July. The balance of the year, however, was hot and dry with considerable Santa Ana wind activity and it was during this period that a substantial part of the State's burned area occurred.

In both the latter part of November and December it was necessary to bring in men and equipment from all districts to assist with major fires in Southern California. In the latter part of November, 135 overhead and 31 fire trucks were moved into this District to assist with two joint Division of Forestry - U. S. Forest Service fires in San Bernardino and San Diego Counties. In the latter part of December, men and equipment were moved into Los Angeles and Ventura Counties to assist with the several major fires occurring at the same time. At the peak of this effort, in addition to Forestry Honor Camp inmates, the Division of Forestry had 151 overhead and 70 fire trucks committed to these fires either on the fire line or in reserve pools of men and equipment at nearby points. The Southern California declared fire season was terminated on January 7 of the New Year.

Due to the severity of the November drought, it became necessary to extend beyond the November 30, terminating date, the period required for written burning permits. Sufficient rainfall did not occur to terminate this proclamation until January 9 of the New Year.

A review of the weather experienced during the year reveals the following:

Throughout most of January, heavy precipitation fell in Central and Northern California, while Southern California, during the latter part of January, experienced one of the most intense storms of record. Temperatures were warmer than usual but turned colder than normal in February. Rainfall continued heavy during February in Northern and North Central California but the rest of the State received below average precipitation.

During the month of March, warm, dry, sunny weather prevailed over most of California with some Weather Bureau stations breaking or nearly breaking many of their March precipitation records. The warm dry weather was reflected in the occurrence of 39 forest fires which burned 274 acres. Due to the warm weather, some snow melt was noted at elevations as high as 9300 feet in the Southern Sierra Nevadas.

The very dry conditions that prevailed over much of California during March were alleviated somewhat in April with well above normal precipitation amounts in that portion of the State south of the latitude of Sacramento and below normal amounts in that area north of Sacramento where most stations reported less than 50 percent of normal precipitation. Snow fell in the San Gabriel and San Bernardino Mountains of Southern California as low as the 2500 foot elevation.

The dry conditions in the northern part of the State during April contributed to the occurrence of 22 forest fires in the North Coast and Northern Districts that burned 128 acres.

During the month of May, California experienced greater than normal rainfall in all drainages except the North Coast and the Southeast desert. Although most stations reported below normal temperatures, in the middle of the month record breaking high temperatures occurred along the coast from San Francisco south.

June weather was near normal and fire danger was relatively low all month due to the unseasonably heavy rain in May and to the absence of any prolonged heat wave in June. Nearly all of the measurable precipitation for the month occurred in the northern half of the State with generally below normal rainfall statewide.

July temperatures were for the most part cooler than expected for the month although there were instances of local heat waves when both the maximum and minimum temperatures were considerably above daily averages. The outstanding feature of the month was the thunderstorm activity that occurred statewide from the 17-29 with additional activity prior to this in the northern part of the State. Although the great amount of thunderstorm activity started a large number of lightning fires (almost 100 in Division of Forestry protection area during the month) accompanying rainfall and lack of any appreciable windiness aided the control of these fires before any large areas were burned.

The month of August was cooler than usual with light precipitation in Northern California and almost none in Southern California. There was some thunderstorm activity in Northern and Central California but Southern California was marked by much below normal thunderstorm incidence.

September temperatures in Northern and Central California were generally below normal and many stations received an exceptional amount of rain for the month from storms occurring in the latter part of the period

which alleviated the fire danger. In Southern California, the month of September was warmer than normal with some stations experiencing their warmest or near warmest September of record.

The month of October was generally cooler than normal statewide with precipitation in Northern and Central California considerably above the October expectancy. In Southern California, although precipitation occurred several times during the month, with a few exceptions, rainfall was below normal. Sufficient precipitation fell during October to end the declared fire season on October 31 in the North Coast, Northern, Sacramento, and San Joaquin Districts.

During the months of November and December, California experienced statewide, one of its worst droughts on record for this time of year. Forest fires occurred in all districts and many stations reported the driest November and December since records began. Although there was minor precipitation throughout the State in the first part of December, this did little to alleviate the dry conditions.

Southern California experienced record high temperatures for so late in the season during November and, with exceptionally high winds and low humidities, had one of its worst periods of Santa Ana wind conditions in many years. December in Southern California was the driest in fifty years.

By January 1 the snowpack, even at the highest elevations was spotty with bare ground the general rule. At Donner Summit east of Sacramento (7135 feet elevation) only one inch of snow was reported on January 1 compared to an average depth of 39 inches for that date, and compared to 106 inches last year. In both the San Joaquin and Sacramento basins only about 50 percent of the season's normal precipitation as of January 1, had fallen.

The following tables are presented for a comparison of the 1956 fire season with 1955, and with the 1951-1955 average.

1 9 5 6
Forest Fires - Zones I & II
State Direct Protection Area

Compared with 1955

<u>District</u>	<u>Occurrence</u>	<u>Acreage</u>
I. North Coast	- 19%	- 88%
II. Northern	- 12%	- 91%
III. Sacramento	- 10%	+ 41%
IV. San Joaquin	+ 16%	- 72%
V. Central Coast	+ 3%	- 76%
VI. Southern	- 3%	+ 93%
Statewide	- 9%	- 60%

Compared with 1951-55 Average

I. North Coast	- 22%	- 82%
II. Northern	- 14%	- 83%
III. Sacramento	- 25%	- 27%
IV. San Joaquin	- 21%	- 89%
V. Central Coast	- 5%	- 80%
VI. Southern	+ 1%	+101%
Statewide	- 16%	- 54%

In the North Coast District, acreage burned in 1956 was the least since 1937 and the second lowest of record. Fire incidence was the lowest since 1944. Both Mendocino and Sonoma Ranger Units had the second lowest incidence since 1944 while incidence in the Napa-Yolo-Solano Ranger Unit was the lowest since 1948. The Sonoma Ranger Unit had the least burned area of record, Lake-Colusa the lowest since 1943, while that of the Napa-Solano-Yolo Ranger Unit was the second lowest since 1942. This District experienced only six fires burning more than 300 acres- the lowest number of record.

Acreage burned in the Northern District during 1956 was the least since 1937 and the second lowest of record. Fire incidence was the second lowest since 1942, bettered only by 1953. Incidence in the Butte Ranger Unit was the second lowest since 1938 while in the Siskiyou Ranger Unit, due to the high July lightning incidence, fire occurrence was only four less than the record high of 1951. Acreage burned in the Lassen Ranger Unit was the lowest of record while Siskiyou equaled the 1948 lowest of record. Butte acreage burned was the lowest since 1937 while that of the Tehama-Glenn Ranger Unit was the lowest since 1940. Only three fires exceeded 300 acres in size which equals the previous best year of 1953.

The Sacramento District burned area, although more than 1955, was still the second best year since 1940. Fire incidence in the Sacramento District was the lowest since 1942. In fire occurrence, the El Dorado and Nevada Ranger Units experienced their lowest occurrence since 1942 while Amador had the lowest since 1938 and Calaveras the second lowest since 1938. Calaveras, Nevada, and Yuba Ranger Units had their second lowest area burned of record, while El Dorado and Amador had their third and fourth lowest burned areas of record, respectively. Due to the large area burned in one fire, the Tuolumne Ranger Unit experienced its largest burned area since 1936. This one fire burned about 60 percent of the total acreage burned within the District for the year. There were five fires which burned more than 300 acres, the smallest number of large fires on record for one year.

The San Joaquin District had the least burned area of record which was also true for the Fresno Ranger Unit. The Mariposa Ranger Unit had the second lowest area burned of record with less area burned in 1955. The other two Ranger Units also experienced near record low areas burned. Although above the excellent record of 1955, 1956 fire occurrence was still second

lowest since 1942 with lows in all Ranger Units. There was only one fire which reached 300 acres in size. This equals the record low in large fires of 1948 and 1955.

In the Central Coast District, area burned was the lowest since 1940. The Santa Clara Ranger Unit had the lowest burned area since 1944, while San Benito and Monterey had their lowest burned areas since 1948.

Although the Monterey Ranger Unit had its highest fire occurrence since 1949, the Santa Clara Ranger Unit had its lowest occurrence since 1938 while that of the Santa Cruz Ranger Unit was the second lowest since 1942. There were only five fires in this District which burned 300 acres, the smallest number of record.

Southern California burned area was the greatest since 1950. There were 19 fires in this District which burned 300 acres or more and, in addition, two large fires originating in adjacent National Forests burned large areas of State protection area. 55% of the State direct protection area burned was burned within this District.

On all Clarke-McNary lands throughout the State there were 47 fires of 300 acres or larger. These fires burned acreages as follows:

Forested Land	3,190	Acres
Non-Timber Producing Watershed . .	47,409	"
Non-Forest Lands.	82	"

Total	50,681	Acres
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The following table summarizes the fire record for State Direct protection areas and for all Clarke-McNary lands within the State:

Annual Forest Fire Statistics

Year	<u>S t a t e</u>			<u>S t a t e w i d e</u>		
	<u>Direct Protection- Zones I & II</u>			<u>All Clarke-McNary Areas</u>		
	<u>Total No.</u> <u>Fires</u>	<u>Man-</u> <u>Caused</u> <u>Fires</u>	<u>Total</u> <u>Burned</u> <u>Acreage</u>	<u>Total No.</u> <u>Fires</u>	<u>Man-</u> <u>Caused</u> <u>Fires</u>	<u>Total</u> <u>Burned</u> <u>Acreage</u>
1945	2,512	2,355	505,221	2,730	2,595	510,316
1946	2,643	2,578	234,879	2,840	2,655	204,823
1947	2,473	2,422	256,472	2,669	2,539	202,318
1948	1,973	1,898	133,223	2,134	2,023	124,206
1949	2,608	2,385	132,253	2,726	2,313	117,020
1950	2,264	2,118	303,393	2,556	2,078	270,150
1951	2,159	1,858	148,360	2,439	1,880	137,851
1952	2,263	2,058	120,974	2,422	1,936	83,967
1953	2,080	1,932	125,150	2,214	1,850	152,670
1954	2,017	1,955	140,072	1,993	1,866	104,488
1955	1,941	1,801	161,510	2,070	1,701	209,141
1956	1,758	1,566	64,617	2,127	1,607	87,868

2. PROGRESS MADE IN EXTENDING PROTECTION TO NEW AREAS AND
ESTABLISHMENT OF BETTER PROTECTION IN OLD AREAS:

A. New Areas:

In 1956, as a result of a series of protection boundary adjustments with the United States Forest Service, 211,153 acres of private lands and 116,452 acres of federal lands were added to State Division of Forestry direct protection area. These were scattered additions and no additional protection organization was required.

B. Old Areas:

In the 1956-1957 budget substantial additions were made to the California Division of Forestry Protection Organization. These were as follows:

(1) Six Assistant State Forest Rangers:

2 - Humboldt Ranger Unit
2 - Mendocino Ranger Unit
1 - Shasta Ranger Unit
1 - San Diego Ranger Unit

(2) One four man crew:

Madeline - Lassen Ranger Unit

(3) One Medium - B.D. Transport Unit with Operators:

Bieber - Lassen Ranger Unit

(4) Nine Patrolmen:

Elk Camp	Humboldt Ranger Unit
Garberville	Humboldt Ranger Unit
Fort Bragg	Mendocino Ranger Unit
Leggett Valley	Mendocino Ranger Unit
North County	Orange Ranger Unit
Sage-Anza	Riverside Ranger Unit
Temescal	Riverside Ranger Unit
Front Country	San Bernardino Ranger Unit
Escondido	San Diego Ranger Unit

- (5) Increase of Bieber Crew, Lassen Ranger Unit, from four man to nine man.
- (6) Increase of aerial patrolmen and lookout-patrolmen in Humboldt and Mendocino Ranger Units from seasonal to yearlong. (4 positions)
- (7) In order to stabilize employment in fire crew leaders and equipment operating personnel, sufficient additional funds were secured to employ yearlong all forest firefighter foreman, almost all forestry equipment operators, and, with winter County Contract funds supporting part, all forest fire truck drivers.
- (8) Sufficient additional firefighter strength was obtained to increase the approved peak season employment from the 978 of 1955-56 to 1135 during the 1956 fire season.

Although one additional crew was gained this year, the Shasta Ranger Unit McArthur crew was combined with the Bieber crew so that the total number of crews remains the same.

The 1956-1957 suppression organization thus is as follows:

225 Crews (48 - 4-man)
 (151 - 9-man)
 (26 -13-man)

33 Patrolmen (Including two aerial and two lookout patrols)

74 Lookouts

45 Bulldozer- Transport Units
 (28 Large D-7 o/e)
 (17 Medium D-4 o/e)

The bulk of the additions were received as the result of a supplemental budget request following the severe losses during the extreme period of August-September in the 1955 fire season and were to fill the most critical needs of the Division.

C. Fire Weather:

(1) Project Skyfire.

The Project Skyfire cloud survey which was participated in by this Division during 1954 and 1955 was not continued in 1956. This project, a lookout cloud survey of cumulus cloud buildups and convective thunderstorm activity to identify cloud breeding areas for possible weather modification treatment to prevent lightning fires, was instead replaced by a program of experimental weather modification. The Division of Forestry undertook this experimental program to learn if natural cumulus cloud structure modification through the use of silver iodide would prove effective in the elimination of lightning strikes.

Northern California was selected as the experimental area since it has the most consistent lightning activity. To obtain as much data as possible during the 1956 fire season, the program was divided into three separate geographic areas with a different method for introducing silver iodide into the atmosphere employed in each.

(a) Aircraft Introduction

This part of the program was assigned to the Lassen, Northern Plumas, Southern Modoc, Eastern Shasta and Southwestern Siskiyou Counties region. This operation locale encompassed an area approximately 100 miles square. The method used to disseminate the silver iodide was a Division made generator attached to the underside of the airframe of a rented Cessna 180 aircraft. Color time-lapse movies were made of this operation from selected ground observation points.

At the conclusion of the fire season during which 27 test applications were made (4 in the North Coast) it was the opinion that clouds treated in this manner undergo a definite change and, although this was a limited test, the resultant is a decrease in lightning activity.

(b) Ground Generator

This method of application was tried in the North Central region of Siskiyou County. Three units were placed in use in this area after their fabrication at the Division of Forestry's Davis shops. Two of these units were mounted on pickup truck bodies for mobility while the other was located at Duzel Rock Lookout for operation by the lookout-observer. Only a few trial runs were made with this equipment due to a late start and no definite results were obtained.

(c) Balloon Application

This method of silver iodide introduction was tested in an area of Northern Shasta County. An explosive packet containing a chemical mixture of dry silver iodide and a granulated explosive charge was developed to be carried aloft by a 36 inch helium filled balloon. Attached to the explosive packet is a 17 foot length of interior burning fireproof blasting fuse which is ignited by a match upon release of the balloon. The fuse is designed to burn at a rate to permit the balloon to reach the 10,000-12,000 foot level before explosion occurs.

Several trials were made with this device but results are unknown.

Although these weather modification experiments were not officially a part of the cooperative "Project Skyfire" investigations being carried on in Montana, liaison was maintained with this group and information and results were interchanged.

It is planned to further carry on this work during 1957.

(2) Fire Danger Rating Investigation.

The California Fire Danger Rating Project was established early in 1955 as a cooperative effort by the California Division of Forestry, the U. S. Weather Bureau and the California Forest and Range Experiment Station. The purpose of this project is to develop a coordinated fire danger rating system applicable to all wildland areas in the State of California.

During 1956, considerable progress was made towards the completion of a climatic analysis of the State which will define climatic zones within which precipitation, temperature, and relative humidities are reasonably uniform at similar elevations. The climatic zones as determined by this analysis will be used as an aid to weather station locations for adequate sampling of weather data.

Using California Forest and Range Experiment Station fire laboratory data, rate of spread curves were drawn and fire danger tables developed for grass, brush, and timber vegetation types. As a measure of fire intensity, a buildup index was developed to integrate the effects of cumulative drying upon the larger fuels in the timbered areas. This index is a cumulative total of the effect of the daily drying as measured by fuel moisture sticks and daily wetting as measured by precipitation.

At the beginning of the 1956 fire season, a trial danger rating area was established in Northern California to test the system as developed to that date. This area included the Division of Forestry Shasta Ranger Unit, the Shasta-Trinity National Forest and the Hat Creek District of the Lassen National Forest.

It is intended to place this system in use, still on a testing basis, in other parts of the State during 1957. During the latter part of 1956, Division of Forestry personnel assisted with the tabulation of certain basic data and other developmental work in order to facilitate the expansion of this system during 1957.

3. IMPORTANT CHANGES IN PROTECTION PLANS,
ADDITION OF PERMANENT PERSONNEL, ETC.:

A. 1956 Fire Plan Revision:

During 1956, California Division of Forestry personnel at all levels, spent six months in careful study and evaluation of the Division's organization and fire plan. This study followed the January 12 directive of the State Board of Forestry instructing the Division to bring up to date the organization's Fire Plan to reflect the present needs and problems of adequate fire protection and to plan to remedy any fire protection deficiencies.

A brief summary of recommendations incorporated within the 1956 Organization and Fire Plan, A Summary of Personnel and Automotive Equipment, includes:

- (1) Addition of seven new crews.
Deletion of two existing crews.
- (2) Change from the present planning concept of 4,9, and 13 man crews (numbers of men on the job seven days a week) to crew complements of 5,9,10,12, or 14 men employed at fire season peak with the addition of one foreman for each two stations for relief.
- (3) Yearlong employment of all forest firefighter foremen in a ratio of 1.5 men per fire control station and 1.0 per patrol. Yearlong employment of all Forestry equipment operators in a ratio of three men per large bulldozer-transport unit and two per medium bulldozer-transport unit. Yearlong employment of one truck driver for each fire control station with seasonal employment of a driver to man the second truck at two truck stations. Yearlong employment of one cook per Ranger Unit with seasonal employment of one cook for each fire control station larger than a five man complement. Employment of planned maximum firefighter strength for three months in Districts I and II, four months in Districts III, IV, and V, and five months in District VI. Yearlong employment of a forest fire truck driver for each water supply truck.

- (4) Addition of 21 medium bulldozer-transport units, 7 forest fire trucks, 16 water supply-dump truck combination units, 30 bulldozer-pilot & service units, 8 stakeside trucks, 9 radio trailers, 2 motor graders, 21 tractor-plow units, 30 trail builders, 33 backfire trailers and 30 hose trailers to the field fire suppression organization.
- (5) Augment the fire prevention and law enforcement program through 24 additional positions with equipment and 45 patrol units for use of fire control station foremen in problem areas in part time fire prevention activity.
- (6) Budget additional funds for extending the program in equipment development and fire control research and add a State Forest Ranger to coordinate the program.
- (7) Augment the staff at Ranger Unit Headquarters in functions of dispatching, warehouseing and clerical.
- (8) Augment the staffs of District and Sacramento headquarters and of the Forestry Honor Camps.

B. Training:

A big step forward, in terms of Divisional coordination of training, was taken during the past year with the formation of the Division of Forestry Training Committee. The Committee, composed of the Assistant Deputy State Forester from each District and the Training Officer, is charged with the responsibility for preparing plans, programs and policies in the field of training for submission to the Executive Advisory Council and the State Forester. In addition each member is charged with the responsibility for training within his District.

The first meeting consisted of a 70 hour "Training the Trainers" course for the Assistant Deputies covering such subjects as Conference Leadership and Participation, use of Audio-visual aids, Job Instruction Training, Learning Processes and Learning to Listen.

At later meetings the Committee worked on plans for the proposed training centers, which it is hoped to eventually establish in each District; a Divisional training policy; a method for reporting training; basic curriculums for Firefighter, Foreman, Driver and Equipment Operator training courses; proposed films and film strips for Divisional use and similar matters of state-wide interest in this field.

The second major undertaking in the training field this year was the establishment of a Defensive Driving Course for all employees whose duties require them to drive. Representatives from all ranger units, except District VI, were given the two day course at Davis in April. They then gave the course in their own unit. By the first of the year nearly 400 employees had received this training and plans are completed to give it to most other employees during 1957. The course originated in Southern California and the personnel in that area have been giving defensive driving training for several years.

Five day courses in Conference Leadership and Listening Techniques were given to management personnel in District I, and plans have been completed to give this in all of the other Districts, with one exception.

Another innovation was the formation of "Flying Squads" from Sacramento, prepared to put on training sessions in the Districts in such fields as "Budget Preparation", "The 1956 Fire Plan", "Personnel", "Fire Control", "Use of Fire Reports",

"Principles of Range Improvement", "Fire Management", "Job Instruction Training", "Communications Coordination", "Aerial Photography", "Range Management Principles" and "Safety". Each District and each Ranger Unit planned and executed its own training program and it is found that these courses are being used quite widely in the District programs.

A more intensive step up recruitment program for college graduates was instituted to obtain technically trained personnel in a very "tight" labor market.

A number of Division personnel were given training in aircraft personnel rescue at McClellan Air Force Base. These persons in turn gave this training to personnel within their local units.

During 1956, fifty merit award suggestions were reviewed by the Division. Of these, three recommendations were made for cash awards and three commendations were recommended. The largest award received was for 105 dollars.

C. Forestry Honor Camps:

During 1956, two additional 80 man adult honor camps were authorized to be added to the honor camp program- one to be known as the Puerta La Cruz Honor Camp located in San Diego County, and the other to be known as the Pilot Rock Honor Camp in San Bernardino County within the San Bernardino National Forest. Site acquisition for these two installations is presently being negotiated.

During 1956, the High Rock Honor Camp in Humboldt County was completed and brought to full strength of 60 inmates. In the

latter part of 1956 the lease for the Crystal Creek Honor Camp in Shasta County was successfully negotiated and design has been initiated. The Vallecito Honor Camp in Calaveras County is in final design and should go to bid early in 1957. On October 1, 1956, the new Mt. Bullion Honor Camp in Mariposa County, built in cooperation with the California Youth Authority, was activated. This replaces the former Coarsegold main camp installation in Madera County.

During the year the Senate Interim Committee on "Prison Labor and Forestry Camps" held several hearings and made a tour of the Honor Camps throughout the State. As a part of this Division's participation in the 86th Annual Congress of Corrections in Los Angeles on the subject of Forestry Honor Camps, a brochure was prepared entitled "State of California Forestry Honor Camp Program".

A State Forest Ranger I position was authorized for coordination of the Honor Camp program in Southern California.

The present authorized honor camp strength consists of fifteen adult camps with an authorized population of 975 inmates (one 85-man, four 80-man, nine 60-man and one 30-man), and three Youth Camps with an authorized population of 265 wards (two 70-man, one 65-man, three 20-man spike).

D. Personnel Changes:

As a result of the additional funds received in the 1956-1957 budget for additional yearlong personnel in forest fire suppression crews, the Division's strength was increased as follows:

<u>Class</u>	<u>Yearlong Employees</u>	
	<u>1955-1956</u>	<u>1956-1957</u>
Crew Foremen	213	321
Patrol Foremen	20	33
Forest Firetruck Driver	33	196(75 County Contract during Winter)
Forestry Equipment Operator	39	76

In addition to the above additions, the following were added:

- (1) Six Assistant Rangers
- (2) Two Forestry Work Project Supervisors to supervise the Puerta La Cruz and Pilot Rock Honor Camps.
- (3) State Forest Ranger I to coordinate the Honor Camp program in Southern California
- (4) Five Assistant Forest Technicians.
 - 3 - District I, Jackson State Forest
 - 1 - District II, Latour State Forest
 - 1 - Cooperative Soil-Vegetation Survey

The Assistant Technician position in Service Forestry at Santa Rosa in the North Coast District was reclassified to Forest Technician. A number of the Dispatcher positions have been reclassified under the new program which will eventually eliminate this class. Lead dispatchers are to be classified as Assistant Rangers and Assistant Dispatchers are to be classified as Forest Firefighter Foremen.

On July 1, Division of Forestry personnel received a 5% increase in salaries and wages when a statewide pay raise took effect.

For comparative purposes with other states, the Division of Forestry top (after four years of service) pay grades now are:

DIVISION OF FORESTRY PERSONNEL

Authorized Strength

All Functions.

<u>No.</u>	<u>Title</u>	<u>Monthly Salary</u>
1	State Forester	\$ 1,100
1	Chief Deputy State Forester	1,000
11	Deputy State Forester	862
6	Assistant Deputy State Forester	710
1	Training Officer Grade I	676
16	State Forest Ranger Grade II	644
21	State Forest Ranger Grade I	584
43	Associate State Forest Ranger	530
113	Assistant State Forest Ranger (Field)	481
12	Forestry Trainee (3-Step Range)	395
5	Senior Forest Technician	644
22	Forest Technician	584
16	Assistant Forest Technician	481
42	Forest Fire Dispatcher-Asst. Ranger	436-481
2	Supervisor of Conservation Education	676
6	Forest Fire Prevention Officer	584
3	Forestry Equipment Engineer	644
17	Forestry Work Project Supervisor	530
105	Forestry Work Project Foreman	436
362	Forest Firefighter Foreman (355 Yearlong)	395
209	Forest Firetruck Driver (3-Step Range) (202 Yearlong)	358
90	Forestry Equipment Operator (87 Yearlong)	436
1160	Forest Firefighter (Seasonal Only)	310
114	Forest Fire Lookout (Seasonal Only)	310
204	Camp Crew Cook (32 Yearlong)	325

The classes beginning with and below the Forestry Work

Project Foreman are called the "Fire Crew Group". The numbers represent those employed at the peak of the fire season. These classes receive a 10% pay increase through the fire season as a standby and overtime bonus in lieu of straight hourly overtime. Other classes receive a 10%, 5%, or nothing for overtime as the title approaches the higher executive classes.

Six Division of Forestry employees died while on duty during 1957. A truck driver and three firefighters were killed in Shasta County when their forest fire truck ran off the road while returning from a fire. A cook in Humboldt County and a truck driver in Sonoma County passed away from heart attacks.

Equipment	Transportation	Station
1 Motor Grader	1 Jeep	3 Bullhorns
1 Mobile Service Unit	4 Pickup Trucks	4 Firetrucks, PWD
2 Panels	2 Firetrucks, Conventional	19 Stakeholders
19 Stakeholders	15 Pickups	13 Sedans
13 Sedans	3 Dump Trucks	3 Concrete Mixers
3 Concrete Mixers	4 Dump Trucks	2 Transporters
2 Transporters	1 Station Wagon	

4. FIRE EQUIPMENT AND IMPROVEMENTS:

A. Equipment.

1. Inventory:

During 1956 (**) the Division had in operation the following equipment:

<u>Transportation</u>		<u>Firefighting Equipment</u>		<u>Construction and Maintenance Equipment</u>	
Sedans	96	Pumpers:		Maintainers	23
Station Wagons	20	Firetrucks FWD	126	Dump Trucks	23
Panels	16	Firetrucks Conv	248	Cement Mixers	31
Pickups	204	Pickup Pumpers	27	Compressor Trucks	5
Stakesides	139	Bulldozers:		Compressor Trailers	16
Jeeps	7	Large	45	Power Wagons	9
		Medium	20	Miscellaneous	23
		Transports:			
		Large	29		
		Medium	19		
		Misc. Equipment:			
		Wheel Tractors	13		
		Discs	13		
		Small Tractor			
		with Plow	1		
		House Trailers	6		
		Various	8		
		Special Service	25		

** Up to July 1, 1957 - end of present fiscal year.

During 1956, the following vehicles were received and placed in service:

- 1 Station Wagon
- 5 Transports
- 4 Dump Trucks
- 3 Concrete Mixers
- 13 Sedans
- 45 Pickups
- 19 Stakesides
- 5 Firetrucks, Conventional
- 16 Firetrucks, FWD
- 2 Panels
- 4 Mobile Service Units
- 4 Pickup Pumpers
- 3 Bulldozers
- 5 Jeeps
- 1 Motor Grader

2. Development and Research:

During 1956, various cooperative tests and experiments were conducted in cooperation with the United States Forest Service. These included integration of the helicopter into the fire organization, the use of fire retardant chemicals and the application of aerial tankers. Cooperative demonstrations of the hose laying attachment for light helicopters lead to its refinement by the U. S. Forest Service Arcadia Equipment Development Center. The Division of Forestry has purchased two of these units which will be available for joint use by either agency. Under guidance of the California Forest and Range Experiment Station, fire retardant chemicals were used extensively in five Division of Forestry fire trucks. Problems of mixing, application, and high abrasion to pumps were encountered but results in the use of the chemical on fires were highly encouraging. Considerable joint effort will be needed to solve these problems and provide another much needed "tool" for the firefighter. Extensive use of the aerial tankers was made upon both U. S. Forest Service and Division of Forestry fires during the 1956 fire season. Following this use, State funds were used to help finance a series of test drops made under varying conditions to establish flight techniques and effective drop patterns. The use of fire retardant chemicals further increased their effectiveness. All of these cooperative programs should be in full operational use during the 1957 fire season.

A demonstration test for medium (D-4 o/e) size bulldozers was held in Monterey County in the latter part of the year to review operating standards and to evaluate machines not previously operated competitively. Test courses were constructed under all brush fuel densities and slope conditions for a two week period. Vendors of the various makes of machines

were invited to participate and observe performances. Small tracklaying tractor (OC-30/e) and fire plows were also tested for possible applications in initial attack operations. This is a part of a continuous testing program to establish performance standard and specifications for all types of automotive and fire fighting apparatus.

Approximately 70 percent of the Division's fleet of vehicles and equipment was equipped with safety belts during the year. At least two accidents occurred which indicate rather conclusively that the use of the belts prevented injury or death to the occupants. Conversely, one accident occurred in which it was reasonable to assume that serious injury would have resulted had the belts been in use. It is generally accepted however, that their use will reduce the number of serious injuries in the majority of cases.

A number of pieces of experimental equipment were constructed or purchased for field trial. Among these were: modification of a 4 x 5 camera with a Polaroid back to permit taking aerial photos on fires; a fire camp headquarters office trailer for campaign fire use; a hydraulic tilting device for a D-4 bulldozer to improve its performance in fire line construction; a torque converter for a four wheel drive fire truck to improve performance in rough terrain; improved backfiring devices; modification of Handie-Talkie radios to make them more adaptable to fire line use; generators, recorders and calibrating devices for experiments with cloud modification and lightning control.

B. Improvements.

1. Structures:

During 1956, fifty construction projects were completed at Division of Forestry installations.

- a. Equipment Buildings: One of these structures was completed providing enclosed storage for five vehicles.

- b. Equipment Shelter: One of these structures was completed providing summer storage for two vehicles. This type structure is built where summer storage of vehicles only is required. Being open on three sides, this structure is of an economical design.
- c. Barracks: Two of these units were completed, replacing over-crowded quarters. Both barracks are for joint housing of both Forestry and custodial staffs at Pine Grove and Beaver Creek Honor Camps.
- d. Combination Barracks and Messhall: Two of these standard units were completed, one is at a new location and is replacing an inadequate metal structure at old site. The other is at newly established station.
- e. Gas and Oil Houses: Three of these standard units were completed where bulk storage of gasoline and oil would result in economy and for accessibility twenty-four hours a day.
- f. Gas and Oil Shelters: Ten of these units were completed. Nine of them are shelters for the protection of gasoline pumps and oil dispensing units of economical design with open sides. One is designed with an enclosed cabinet for storing two oil barrels, dispensing can, and record book. These units were placed only where bulk delivery of gasoline or diesel oil would result in economy and accessibility twenty-four hours a day.
- g. Pump Houses: Two of these units were completed, one houses a combination well, water reservoir and pressure tank system. The other houses the sewage pump and controls for a hillside spray system at the Iron Mine Honor Camp.
- h. Rangers' Residences: Two of these standard three bedroom structures were built at locations where housing is difficult to obtain.
- i. Residence Garages: Three two-car units were completed. Two of them at new residence sites, and one to replace an inadequate, poorly constructed garage, and all for housing State equipment.
- j. Storeroom and Woodshed: One of these units was completed at a Ranger Unit headquarters.
- k. District Headquarters: One of these units was completed for District III Headquarters at Sacramento which consists of office to house district deputy staff, combination warehouse and equipment shelter, sewage pumping house and gasoline facility. The construction of this unit was by contract under the supervision of the State Division of Architecture.

1. Repeater Vaults: One of these units was completed at an existing mountain-top location to provide seven additional bays for housing radio relay equipment of our own and other agencies.
- m. Buildings Remodeled: Five buildings were remodeled, which included one storeroom addition to kitchen and messhall, one recreation room addition to barracks, two Ranger Unit headquarters office buildings remodeled, and one paint-booth addition to shop building.
- n. Lookout Towers Remodeled: Four lookout towers were remodeled. These included two 60 foot steel towers, one of which was extended an additional 45 feet and had catwalk added and cab remodeled, the other had cab remodeled and catwalk added.
- o. Grounds Development and Utilities: Three sites were developed to receive new structures or for betterment of existing facilities.
- p. Forestry Honor Camps: Two of these 80-man work camps were completed at High Rock in Humboldt County and Mt. Bullion in Mariposa County. The High Rock Camp includes inmate barracks, messhall, recreation building, warehouse, shop, two combination 9-man staff barracks and office, gas and oil and generator building, equipment storage building, two residences, and one four-car residence garage. The Mt. Bullion camp includes a combination messhall and recreation building, a combination inmate barracks and laundry, combination office and 18-man staff barracks, equipment storage building, gas and oil house, two standard ranger residences, and two two-car residence garages. The construction of these two projects was by contract under the supervision of the State Division of Architecture.
- q. Bulldozer-Transport Shelters: Two were completed. One is a combination automotive shop and open ended transport shelter, and the other is a combination warehouse and transport building.
- r. Warehouses: Two of these structures were completed where storage facilities were inadequate at two Ranger Unit headquarters.
- s. Power Plant Shelter: One of these units was completed at an honor camp.
- t. Office: One of these units was completed as a panelized building at a temporary honor camp.
- u. Laundry: One of these structures was completed at an honor camp.

At the end of 1956, the Division of Forestry had an inventory of approximately 1450 structures.

2. Maintenance and Improvements:

This is a continuous program mostly accomplished during winter or non-fire season months by Forestry and honor camp inmate personnel. The economy of this program is materially aided by the use of shingles, pumice building block, cabinet and millwork, treated fence posts, and treated lumber produced in our honor camps.

3. Roads, Telephone and Power Lines:

Although considerable time was required to repair the damage done to our existing roads by the floods of December 1955 and January 1956, we were able to construct during 1956, 45.5 miles of additional road for fire protection access. In District IV we were able to transfer 9.8 miles of fire road from our net work to the county road department, as these roads had become public roads. This gave us a net increase of 35.7 miles and brought the total for our statewide fire road network to 3421 miles.

District I	361.5 miles
District II	1046.7 miles
District III	618.0 miles
District IV	481.2 miles
District V	357.5 miles
District VI	556.0 miles

Statewide Total 3420.9 miles

We are gradually reducing the mileage of telephone lines in our communication network as fast as other means prove adequate for our needs. The ground return system was reduced by 43 miles to a total of 603 miles and our metallic circuits were reduced by 9 miles to a total of 1579 miles.

	<u>Ground Miles</u>	<u>Metallic Miles</u>
District I	155	115
District II	225.7	390.1
District III	124	471.3
District IV	16	238
District V	82	166.5
District VI	0	198.2
Statewide Total	602.7 miles	1579.1 miles
<u>GRAND TOTAL</u>		<u>2181.8 miles</u>

The Division of Forestry owns 11.8 miles of power line. Last year the Division reported 14.2 miles of power line and this included 1.5 miles to Banner Mountain Lookout. This line is in fact owned by the P.G. & E. Company and; therefore, the reduction to 11.8 miles.

4. Land Transactions:

Acquisition negotiations were completed for four parcels of land this year. One is an additional administrative site. One replaces a long term lease that had expired and couldn't be extended to our satisfaction. One was for additional land for an existing administrative site to protect our water supply and one was for a small parcel that was inadvertently omitted from a previous acquisition. Also we sold one small parcel that had been occupied by a private residence for many years. Three new leases were entered

into this year for an honor camp, a fire station, and a radio repeater site.

5. Maps:

Two administrative maps were compiled during 1956, (San Bernardino & Glenn) and two old maps were revised (Sonoma & Lake). Many charts and special maps were prepared for the State Board of Forestry and for the Fire Prevention Education Section.

C. Radio.

In the 1956-57 fiscal year the Division radio net was augmented by 43 additional pieces of radio equipment plus the replacement of 100 units which had reached operational obsolescence during this period. The full complement of Forestry's radio equipment is reflected in the table below:

	<u>Base Station</u>	<u>Mobile Relay</u>	<u>Mobile Land</u>	<u>Portable Unit</u>	<u>Mobile Unit</u>	<u>Handie Talkie</u>	<u>Remote Control</u>
District I	8	11	1	37	172	82	8
District II	6	5	1	26	141	75	4
District III	9	4	1	29	148	72	6
District IV	5	4	1	23	111	66	3
District V	6	7	1	26	121	74	6
District VI	5	8	2	24	153	73	6
Administration	1	-	-	1	4	2	1
TOTAL	40	39	7	166	850	444	34
GRAND TOTAL							<u>1580</u>

Throughout the year a continuing program designed to find ways to intensify radio coverage in some of the remote mountainous areas of the State has been carried out. This is being accomplished by conducting on-the-ground radio coverage surveys and better utilization of available frequencies in the Safety Services group. A selected number of new mobile equipment obtained this year will contain third channel features making it possible to operate on direct car to car basis as well as through established mobile relay circuits in areas where this type of operation is needed. This direct contact is particularly desirable for fire-line operation.

5. FIRE PREVENTION:

Man-caused fires during the 1956 season were reduced by 13% from the total in 1955. Results of the forest fire prevention campaign can be measured to some degree by this and other statistical records covering the past ten or more years. There has been a definite downward trend through that period, with a more noticeable drop in 1955 and 1956. The co-operative educational campaign activities continue to expand and through repetitious warnings and advice, people generally are becoming more careful. Some of that care is through the more or less unconscious development of safer habits. In addition to their educational activities field personnel of the Division have been expanding their on the ground inspection and assist programs with the people who live and work in the wildland areas. It must be recognized that forest fire prevention results in the State cannot be measured by the activities of any one organization.

Protection areas of the various agencies are so closely related that prevention programs have been developed on a co-operative basis. This is especially true in the educational phase.

This report will again be divided into two parts for clarity. Part one will consider the educational, hazard reduction and parts of law enforcement activities of Division of Forestry field personnel from the District and Ranger Unit level. Part two will treat the broad educational field as spear-headed from the State Forester and U. S. Regional Forester level.

1. Field Personnel Activities:

The localized Keep Green organizations and the various protection agencies worked together but in many instances on their own programs in the same areas. While this might indicate a duplication of effort, the guidelines were so well drawn that very little duplication was evident. However,

many of the activities listed below have been cooperative with other agencies and a great number of others in which our personnel have assisted will not be credited.

The following statistics are offered to indicate the concerted effort directed toward fire prevention, and to show the scope of the program and balance in use of available media:

A. Newspaper Publicity.

1. Made 5,635 contacts with the press which resulted in editorials, fire news, and other prevention copy.
2. Made 901 news releases.
3. Made 125 contacts with press which resulted in 69 dropins and 56 sponsored advertisements.

B. Radio Publicity.

1. Participated in 62 radio presentations (talks, interviews and programs).
2. Presented material for 491 short announcements.

C. Visual Education.

1. Distributed 2,100,000 pieces of printed material including posters, leaflets, pamphlets, stickers, etc.
2. Arranged for 236 displays in store windows, theatres and public buildings.
3. Made 1,141 postings on Division of Forestry 4' x 8' highway right-of-way roadside signs.
4. Displayed 62 floats and/or equipment which was viewed by 225,000 people.
5. Made 46 exhibits at fairs which were viewed by 1,200,000.

D. Group Contacts.

1. Presented 1,130 programs with and without films which were attended by 38,000 adults.
2. Presented 1,166 programs with and without films attended by 90,000 children.

E. Training.

1. Held 1,130 training programs with an attendance of 17,552.

F. Personal Contacts.

1. Made 122,665 personal contacts at fair booths and equipment exhibits.
2. Made 100,431 contacts during normal work day.
3. Made 63,449 personal contacts during 31,876 man-hours spent on patrol duty.

G. Permits.

1. Issued 93,151 regular burning permits.
2. Issued 513 range improvement permits.

H. Inspections (Zones 1 and 2).

1. Sawmills- 854.
2. Other Mills- 101
3. Logging operations areas- 1,994.
4. Industrial areas (other) - 348.
5. Dumps (public and private) - 882.
6. Public areas (recreational, school, etc.) - 613.
7. Residential areas (farm and mountain) - 7,144.
8. Mechanical equipment (farm, logging, construction, etc.)
- 3,509.

I. Hazard Reduction (Zones 1 and 2).

a. Rights-of-Way.

1. State and county highways (disced, burned or treated)
- 357 miles.
2. State and county highways (disced, burned, or treated in
cooperation with others) - 419.
3. State and county highways (disced, burned, or treated by
others) - 801 miles.
4. Railroads fireproofed (cooperative) - 155 miles.

b. Industrial Areas.

1. Cleanup compliance at sawmills and other mills - 322.
2. Cleanup compliance in logging and other areas - 1,091.

c. Other Areas.

1. Cleanup and fireproofing of dumps - 422.
2. Public areas - 407.

The following statistical record lists, by percent of total of man-caused fires, locations, causal agents, and causes of forest fires occurring in the Division of Forestry's direct protection responsibility area (Zones 1 and 2):

<u>Location</u>	<u>%</u>
Roadside	26.94
Logging and Lumbering Areas	5.86
Wildlands	42.29
Dooryards	12.55
Cultivated Areas	3.06
Railroads	4.52
Dumps	2.10
Miscellaneous	2.68
	<u>100.00</u>

Causal Agents

Rancher-Farmer	14.65
Tenant	9.30
Children	15.10
Traveler	23.31
Commercial Transporter	.70
Forest Product Worker	5.80
Construction Worker	1.53
Hunter	8.41
Fisherman	.76
Recreationist	3.18
Tramp	1.02
Railroad & other vehicles	5.54
Miscellaneous	9.94
Structural Agents	.76
	<u>100.00</u>

Causes

Smoker-Matches-Tobacco	43.64
Debris Burning (non-permit)	4.71
Debris Burning - Permit Escape (Land clearing, incinerators, range improvement, trash burning)	13.38
Vehicle	7.20
Railroad - Mechanical	3.12
Incendiary	9.11
Logging-Slash	.57
Sawmill Burner	1.08
Power Line	2.55
Campfires	2.61
Blasting, spontaneous combustion, stationary engine, welding, structural.	3.50
Miscellaneous	8.53
	<u>100.00</u>

2. Statewide Cooperative Education Program:

The State Forester and Regional Forester coordinate and solicit the activities of the California Fire Prevention Committee in a statewide educational program. This committee has membership from business, industry, informational media, promotional groups and governmental agencies. All of the members are in organizations who have statewide or wide regional influences. The "Keep Green" organizations who are extremely active, are also members of the committee. It is through this committee that the broad educational program of the Division is activated.

As reported in the past, it is impossible to report on the activities on this program except in a general way. The Division does furnish large quantities of printed materials, mainly leaflets, stickers and posters to the members. Many of the members also develop materials of their own for distribution. Programs on radio and television are produced by co-operators, often without our having knowledge of them. The same thing occurs in other media.

After two preliminary meetings of the executive committee, a general meeting of the California Fire Prevention Committee was held in San Francisco and another in Los Angeles. The annual awards made by the committee were presented to the Southern Pacific Co. in San Francisco, and to the Los Angeles City Department of Water and Power in Los Angeles.

Mass educational activities during this year followed closely those of the past several years, but increased in volume. Members of the committee made many more of their facilities available and continued to enlist associates into using their facilities. Again, records of all contributions are not available, so not even estimates of total exposures is possible.

The Division prepared over seven million pieces of printed materials for the statewide program. Motion picture theater trailers, television spots, featurettes, and slides were again produced and distributed to Fox West Coast Theaters and all television stations.

As in other states, Smokey Bear's popularity as the symbol of forest fire prevention is each year gaining stature and is reflected in decreased forest fire incidence.

Year	Forest Fire Incidence (Acres)	Forest Fire Incidence (Acres)	Forest Fire Incidence (Acres)
1951	1,234	1,234	1,234
1952	1,123	1,123	1,123
1953	1,012	1,012	1,012
1954	901	901	901
1955	890	890	890
1956	789	789	789
1957	678	678	678

6. LAW ENFORCEMENT:

Law enforcement activities of the Division resulted in 1566 cases investigated, which were resolved either through court action or by other action satisfactory to the State before going to trial. Of this total 91 were criminal cases, 130 were civil cases, with the remaining 1537 settled administratively. The following table is presented for comparison with the past five year period:

<u>Year</u>	<u>Man-Caused Fires * State Responsibility Area (Zones 1 & 2)</u>	<u>Criminal Cases</u>	<u>Civil Cases</u>	<u>Administrative Cases</u>
1951	1,858	124	137	1,597
1952	2,058	147	114	1,797
1953	1,932	163	91	1,678
1954	1,955	153	78	1,724
1955	1,801	109	68	1,624
1956	1,566	91	130	1,345

*Clarke-McNary forest fires plus fires occurring in non- Clarke-McNary areas which are the responsibility of the Division of Forestry. Separation of Law Enforcement statistics by area or land ownership is not administratively feasible.

7. INCREASES IN APPROPRIATIONS:

<u>1955-1956 Expenditures</u>	<u>Estimated 1955-56</u>	<u>Actual 1955-56</u>	<u>Change</u>
Support	\$ 10,321,712	\$ 10,033,886 -	\$ 287,826
Other Current Expenditures	<u>2,543,530</u>	<u>2,496,375 -</u>	<u>47,155</u>
Total	\$ 12,865,242	\$ 12,530,261 -	\$ 334,981
Capital Outlay	\$ 2,303,678	\$ 1,024,045 -	\$ 1,279,633

<u>1956-1957 Budget</u>	<u>Actual 1955-56</u>	<u>Estimated 1956-57</u>	<u>Change</u>
Support	\$ 10,033,886	\$ 12,191,378 +	\$ 2,157,492
Other Current Expenditures	<u>2,496,375</u>	<u>2,389,890 -</u>	<u>106,485</u>
Total	\$ 12,530,261	\$ 14,581,268 +	\$ 2,051,007
Capital Outlay	\$ 1,024,045	\$ 3,449,364 +	\$ 2,425,319

Support:

1955-56

Actual Salaries and Wages were less than the estimated amount by \$176,686. Overexpenditures in the Honor Camp program were offset by savings in all other functions, with an overall savings of 2.38%.

Actual Operating Expenses were less than the estimated amount by \$80,238. Savings were evenly distributed among all functions and amounted to 2.85% of the estimated expenditures.

Actual Equipment expenditures exceeded the estimated amount by \$5,061. This overexpenditure occurred in Honor Camps, Field Fire Protection Services, and a small amount in the State Nursery. The overexpenditure amounted to 1.13% of the estimated amount.

Reimbursements were less than anticipated by \$16,933, being fairly evenly distributed in all accounts. The greatest error in estimate was for field subsistence.

The total savings for 1955-56 in support items was \$287,826.

1956-1957

Estimated Salaries and Wages exceed the actual amount spent in 1955-56 by \$1,507,763, or an increase of 20.83%. Much of this amount is due to a general 5% salary increase for most employees and a 10% salary increase for firefighters, clerical personnel, and engineers. The supplemental budget provided for a considerable number of additional crew supervisory and equipment operating personnel.

Estimated Operating Expenses exceed the actual amount spent in 1955-56 by \$436,130, or an increase of 15.92%, mainly in the Field Fire Protection Services where additional crew supervisory positions were provided and in the Honor Camp function where new camps were changed from Capital Outlay to Support.

Estimated Equipment expenditures are higher by \$282,478, or an increase of 62.38%. Most of this increase is due to replacement of a large number of vehicles in the Field Fire Protection Services as well as the addition of new medium bulldozer-transport units and various new vehicles in the same function. Large price increases of vehicles occurred due to a change in purchasing from dealers instead of directly from manufacturers and due to steel price increases.

Reimbursements are expected to increase by \$166,788, attributable mostly to projects for the Division of Beaches and Parks to be done by inmate labor from the Honor Camps. Another large item is an estimated increase in subsistence due to augmentations in field personnel.

The total estimated increase for Support in 1956-57 over 1955-56 is \$2,157,492.

Other Current Expenses:

1955-1956

Actual expenditures were \$47,155 less than anticipated for Other Current Expenses. The savings were reflected principally in some estimated funds not being expended for White Pine Blister Rust Control and Forest Insect Control.

The large fires experienced in Northern California in August and September of 1955 required an emergency appropriation of \$270,000. This amount added to the estimated amount of \$320,000 gave a total of \$590,000 available for Emergency Fire Suppression and Detection. Only \$17,250 of this total was not expended.

1956-1957

Other Current Expenses estimated for 1956-57 are less than actual expenditures for 1955-56 by \$106,485. This difference is due principally to the emergency appropriations of \$270,000 for Emergency Fire Suppression and Detection and \$61,729 for Flood and Storm Damage appropriated for the 1955-56 fiscal year.. These two amounts overbalance what would otherwise have been an increase for Other Current Expenses for the 1956-57 year, since there were nominal increases in almost all continuing programs.

Capital Outlay and Savings:

The decrease in actual expenditures over estimated expenditures in 1955-56 was due to the inability to construct two Honor Camps because of delays in obtaining the ownership of sites. These camps, added to two more camps estimated for the 1956-57 year, account for most of the \$2,425,319 increase in the estimate for the 1956-57 year as compared to the actual expenditures in 1955-56.

8. LEGISLATION:

The 1956 Legislature considered only budget measures so no legislation was enacted affecting the fire control operations of the Division of Forestry.

The large fires experienced in Northern California in August and September of 1955 required an emergency appropriation of \$270,000. This amount added to the estimated amount of \$270,000 gave a total of \$540,000 available for Emergency Fire Suppression and Detection. Only \$17,529 of this total was not expended.

1955-1957

Other current expenses estimated for 1955-57 are less than actual expenditures for 1955-56 by \$204,182. This difference is due principally to the emergency appropriations of \$270,000 for Emergency Fire Suppression and Detection and \$61,729 for Flood and Storm Damage expenditures for the 1955-56 fiscal year. These two amounts overbalance what would otherwise have been an increase for Other Current Expenses for the 1955-57 year, since there were normal increases in almost all continuing programs.

Capital Outlay and Savings:

The decrease in actual expenditures over estimated expenditures in 1955-56 was due to the inability to construct two Honor Camps because of delays in obtaining the ownership of sites. These camps, added to two more camps estimated for the 1955-57 year, account for most of the \$2,125,319 increase in the estimate for the 1955-57 year as compared to the actual expenditures in 1955-56.

9. PROGRESS MADE IN MEETING FIRE PROTECTION
STANDARDS AND OBJECTIVES:

Man-caused fires and acreage burned upon California Clarke-McNary lands continued a downward trend during 1956, one of the best years upon record in both incidence and acreage burned. However, we are still faced with the problem of how to most effectively cope with that small percentage of the fires - the large fires- which burn the great areas and do the bulk of the damage. A few fires in Southern California during the latter part of the year accounted for the bulk of the total wildland area burned in California during 1956.

California fire protection agencies recognize that one of their principal problems is in large fire control techniques and in the development of new methods and equipment which will enable those fires which now become large to be controlled within the smaller size classes. An example of the fine mutual aid relationships that exist between California fire protection organizations is the several cooperative projects in fire research and equipment development that are now in progress and planned for California to enable all agencies to better meet the large fire problem.

The continuing downward trend in the number of man-caused fires and area burned has not been effected through large increases in the number of suppression crews. Instead, field personnel have been devoting larger efforts to fire prevention contact work; fire prevention patrolmen have been increased; existing crew leadership has been strengthened; better equipment has been developed and new techniques have been developed which enable fire control forces to attain greater effectiveness with the same level of equipment and manpower.

In 1946, the population of California was estimated to be 9,548,000 persons. It is now estimated to be 13,800,000 persons or an increase of 44.5%. In 1946, the California Division of Forestry suppression organization contained 205 crews with 205 men yearlong. In 1956, the Division's suppression organization had grown to 225 crews with 582 men yearlong (not including 75 fire season fire truck drivers supported during the winter period by county contract).

A review of the California Division of Forestry suppression organization increases during the past ten years shows-

1. Twenty additional crews- the bulk of which were added during the first few years of the decade.
2. Twenty-six additional patrolmen for fire prevention contact work.
3. Added relief for fire crew leaders and forest fire lookouts during the fire season period.
4. Increases in yearlong fire crew personnel by 377 persons of which 246 were received in the 1956-57 budget.

In addition to Division of Forestry organizational increases, additional funds have also been provided for those organizations protecting State responsibility lands under contract.

A reflection of the progress made by this Division, as well as those organizations protecting Clarke-McNary lands under contract with the State, is the following figures concerning the changing fire problem.

California Clarke-McNary Lands

<u>Total Fires</u>	<u>Man-Caused Fires</u>	<u>Acres Burned</u>	<u>% C.M. Lands Burned</u>
<u>1947-51 Average</u>			
2505	2167	170,309	.87
<u>1952-56 Average</u>			
2165	1792	127,627	.65
<u>1956</u>			
2127	1607	87,868	.45

10. COOPERATIVE AGREEMENTS FOR PROTECTION OF S & P LANDS:

1. Fire Plans:

In July of 1955, a State Forest Ranger I position was set up in the Sacramento Fire Control Office to coordinate with the U. S. Forest Service in the fire planning for those State and private lands within the National Forests. During the latter part of 1955 and the first part of 1956 a pilot study was undertaken upon the San Bernardino National Forest. This was a cooperative endeavor by the two agencies for the purpose of evaluating the particular problems connected with the protection of State responsibility lands within the National Forests. It was felt by all concerned that the information gained from such a study would enable both agencies to approach the problem on each individual forest in a more realistic manner.

In its final form, the San Bernardino Study was reviewed by both agencies, the State Board of Forestry, representatives of the lumber industry and Southern California citizen groups. Guided by the findings of this study, and as a part of the 1956 fire re-planning, a fire plan was developed for each National Forest and a new approach to the allocation of State funds for the protection of the State and private lands within the National Forests was evolved.

In addition, during a series of meetings held in each District with U. S. Forest Service and Division of Forestry personnel, a number of minor protection boundary changes were effected and agreement in principle was reached upon several proposed major boundary changes in areas of predominant private land ownership. The scheduling of any major boundary changes is dependent upon legislative approval and adequate financing for the fire protection job in the area.

As a part of the 1956 fire re-planning, fire plans were also developed for each of the contract counties detailing the fire control organization that the State would need to do the job, to planned State standards were it the direct protection agency.

2. Clarke-McNary Land Protection:

The State Forester contracts, by cooperative agreements, for the protection of Clarke-McNary lands with the U. S. Forest Service and the six contract counties of Kern, Los Angeles, Marin, San Mateo, Santa Barbara, and Ventura, as follows:

C-M Lands Protected by the State	12,473,104
C-M Lands Protected by the U. S. Forest Service	5,355,707
C-M Lands Protected by the Contract Counties	<u>1,623,200</u>
Total	19,452,011

The above figures differ from the 19,500,000 acres total, as stated in the 1950 Area & Cost and from the figures of last year, due to a re-alignment of U.S.F.S.-State protection boundaries and revisions in acreage figures of private lands protected by the National Forests.

The State allots presuppression costs to the U. S. Forest Service with Clarke-McNary and State money for the protection of Clarke-McNary lands; 16.2¢ per acre is paid at present.

3. Federal Lands Protected by the State:

<u>Agency</u>	<u>Area Acres</u>	<u>Method of Payment to State</u>
Bureau of Land Management Unappr. Public Domain:		
Zone 1	1.185 M.M.	16¢/Acre/Year
Zone 2	.509 M.M.	14¢/Acre/Year
Other	.330 M.M.	None
Grazing Lands Zones 1, 2 & 3	.690 M.M.	Fire Cost Reimburse- ment
U. S. Forest Service	.323 M.M.	16.2¢/Acre/Year
Bureau of Indian Affairs	.268 M.M.	Fire Cost Reimburse- ment
Other Government	.225 M.M.	None
Total	3.530 M.M.	

4. Total Land Area Directly Protected by State:

* Zone 1 and 2	23,133,695 acres
** Zone 3 (25 Counties)	9,740,000 acres

* All State, private and intermingled federal lands, which are directly protected by the State and are primary watershed or timber lands with contiguous secondary watershed and grazing lands. (12.473 million acres are Clarke-McNary.)

** Rural, agricultural, grazing and wildlands not qualifying as State responsibility, but which are protected by the State on an actual presuppression cost basis reimbursed by the county concerned. Each county buys protection desired. (Siskiyou and Lake Counties did not renew agreements in 1956.)